



State of New Jersey  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JON S. CORZINE  
Governor

LISA P. JACKSON  
Commissioner

May 1, 2006

Mr. Albert J. Boettler  
Senior Consulting Associate  
DuPont Chambers Works  
Deepwater, NJ 08023

Re: DuPont Chambers Works Facility  
Carney's Point and Pennsville Twps., Salem County  
Minor Modification to the NJPDES/DGW Permit No. NJ0083429  
Perfluorooctanoic Acid (PFOA) Sampling Requirement

Dear Mr. Boettler:

In accordance with N.J.A.C. 7:14A-16.5 the New Jersey Department of Environmental Protection (NJDEP) is issuing a minor modification to NJPDES/DGW Permit NJ0083429. The main purpose of the modification is to add Perfluorooctanoic Acid (PFOA) as a constituent to analyze for in the ground water sampling program as outlined in the attached revised permit.

The 33 wells listed in the attached Table 5 will be sampled for PFOA semi-annually beginning with the next scheduled sampling event. These wells were selected to provide a full characterization of ground water quality in Aquifers B, C, D, and E along the site perimeter, near potential on-site past disposal locations and in proximity to PFOA-related operations in the site interior. The PFOA data will be submitted to the NJDEP within 90 days of sampling. All results above the detection limit must be reported. The data shall be presented in a table as well as shown on a figure with well locations and concentrations. After two sampling rounds the program will be evaluated to see if modifications are necessary.

If you have any questions on the final permit, please contact Frank Faranca, CHMM, Site Manager of the Bureau of Case Management at 609-984-4071.

Sincerely,

Bruce Venner, Bureau Chief  
Bureau of Case Management

Enclosure

C: Frank Faranca, CHMM, NJDEP/DRMR/BCM  
Eileen Murphy, NJDEP/DSRT  
Gloria Post, NJDEP/DSRT  
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Salem County Health Department  
Salem County Planning Board  
Salem County Utility Authority  
Tracy Carluccio, Delaware Riverkeeper Network

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**TABLE OF CONTENTS**

**E.I. DuPont de Nemours & Co. Inc.**

I.	Table of Contents
II.	Part I - General Conditions for All NJPDES Permits
III.	Part II - Ground Water Monitoring Requirements
	A. General Conditions
	B. Post Closure Ground Water Monitoring Requirements for "A", "B" and "C" Basins, the Process Water Ditch System And Other RCRA Units
	C. Ground Water Monitoring Requirements for the Corrective Action at "C" Landfill
	D. Classification Exception Areas
IV.	Part III - Special Conditions for E.I. Du Pont Chambers Works
	A. Closure/Post Closure Requirements for the RCRA "A" & "B" Basins
	B. Post Closure Requirements for the Process Water Ditch System ("A" and "C" Ditches)
	C. Closure and Post Closure Ground Water Monitoring/Remediation Requirements for the "A", "B", and "C" Basins, the Process Water Ditch System ("A" and "C" Ditches), Other RCRA Units and Miscellaneous Ground Water Corrective Action Programs
	D. Corrective Action Requirements for the Secure "C" Landfill
	E. General Conditions (Semi-Annual Reports)

Figures found in Ground Water Remediation and RCRA Post Closure Plan

1. Chambers Works Monitor Well Sampling Plan Map – Figure 6

Tables found in Groundwater Remediation and RCRA Post Closure Plan

1. Corrective Action Groundwater Monitoring Schedule and Analyte List - Table 4
2. Wells and Staff Gauges to be Used for Water Level Measurements – Table 3
3. PFOA Monitoring Program Schedule - Table 5

Appendixes found in Groundwater Remediation and RCRA Post Closure Plan

- A. Monitor Well Certification Forms – Appendix C
- B. Classification Exception Areas – Appendix B
  1. Electronic Deliverables
  2. Hard Copy Deliverables

**PART I - STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY  
DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION**

**GENERAL CONDITIONS FOR ALL NJPDES/DGW PERMITS**

The New Jersey Pollutant Discharge Elimination System (NJPDES) regulations (N.J.A.C. 7:14A-1 et seq.) as authorized by the New Jersey Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) identify requirements for all Discharge to Ground Water Permits. Information concerning these general permit requirements may be found in the following sections of the NJPDES regulations:

<b><u>Permit Requirements</u></b>	<b><u>Citation</u></b>
Abbreviations, Acronyms, and Definitions	Subchapter 1
Program Requirements	Subchapter 2
Conditions Applicable to all NJPDES Permits	Subchapter 6
Requirements for Discharge to Ground Water	Subchapter 7
Additional Requirements for Underground Injection Control Program	Subchapter 8
Ground Water Monitoring Requirements for Hazardous Waste Facilities	Subchapter 10
Procedures for Decision Making – NJPDES Permit Processing Requirements	Subchapter 15
Transfer, Modification, Revocation, Reissuance, Renewal, Suspension and Revocation of Existing Permits	Subchapter 16
Procedures for Decision Making – Adjudicatory Hearing and Stays of Permit Conditions	Subchapter 17
Public Access to Information and Requirements for Determination of Confidentiality	Subchapter 18

## **PART II - GROUND WATER MONITORING REQUIREMENTS**

### **A. General Conditions**

1. Within six months of completion of any well installation, DuPont will submit well certification forms A and B (Ground Water Remediation and RCRA Post Closure Plan (GWR-RPCP), Appendix C ) to the Department for each well installed as part of the semiannual report.
2. Within 60 days of the effective date of the permit DuPont must submit a map to the Department which shows the location of all the wells at the facility including any newly installed wells.
3. The permittee shall inspect each monitor well at a frequency sufficient enough to insure the structural integrity of each well so that a sample can be collected and analysis reported in accordance with the permit reporting schedule. The permittee shall maintain a complete inspection record including the dates of inspection, inspector's name, and conditions observed. These records shall be made available to the Department upon request.
4. If permitted water quality monitor wells are damaged or are otherwise rendered inadequate for their intended purpose, the Department must be notified in writing within 5 days of discovering the damage. The letter shall include the damaged wells, the cause and extent of the damage, and the date which the wells will be operational. DuPont should indicate if the sampling schedule will be affected. The damaged well must be repaired, replaced (and the damaged well sealed), or sealed within 60 days of discovery of the damage. The well may be replaced in the sampling or water level monitoring program with another existing well if DuPont can justify that the well will serve the same purpose. If a sampling event is missed, the well must be sampled at least two weeks after well development and no longer than one month after development.
5. DuPont may petition the Department to change the sampling programs. Any changes to these programs will not be considered a major modification of this permit.
6. All ground water samples must be collected in accordance with the DuPont Chambers Works *Environmental Data Quality Assurance and Quality Control Program* (August 4, 2000). All sampling procedures and QA/QC procedures must be consistent with most recent version of the NJDEP Field Sampling and Procedure Manual. In addition, all QA/QC documentation must be maintained at the facility and submitted to the Department upon request. Within 6 months of the effective date of this permit, Dupont will submit an updated quality assurance quality control program for Department approval.

### **B. Post Closure Ground Water Monitoring Requirements for "A", "B" and "C" Basins, the Process Water Ditch System and Other RCRA Units**

1. DuPont shall sample point of compliance wells for the "A", "B", and "C" Basins shown in Figure 6 according to the schedule and analyte list in Table 4, Part 1 and 2 of the GWR-RPCP.
2. DuPont shall sample perimeter monitoring wells shown in Figure 6 according to the schedule and analyte list in Table 4, Part 4 and 5 of the GWR-RPCP
3. DuPont shall sample four point of compliance wells as part of the RCRA SWMU post closure plan for SWMUs 21, 25, 26, and 28 according to the schedule and analyte list in Table 4, Part 6 of the GWR-RPCP.
4. DuPont shall sample the monitoring wells shown in Figure 6 of the GWR-RPCP as part of the PFOA Monitoring Program according to the schedule and analyte list in Table 5 of the GWR-RPCP.

### **C. Ground Water Monitoring Requirements for the Corrective Action at "C" Landfill**

1. DuPont shall sample point of compliance wells for the Secure C Landfill shown in Figure 6 according to the schedule and analyte list in Table 4, Part 3 of the GWR-RPCP.

#### **D. Classification Exception Areas**

1. Pursuant to the February 1, 1993 Ground Water Quality Standards (N.J.A.C. 7:9-6 et seq.), the Department of Environmental Protection (Department) is designating Classification Exception Areas for the ground water beneath the DuPont Chambers Works site in Pennsville and Carneys Point Townships. The Department bases this decision on the fact that a) the ground water at the site is hydraulically controlled by ground water recovery systems necessary for the protection of human health and the environment b) DuPont signed an Administrative Consent Order with the Department in which they committed to remediating the RCRA land disposal units at the site, c) DuPont is complying with their EPA Hazardous and Solid Waste Management Permit which requires DuPont to identify and reduce the sources of contamination on-site, d) continued use of the property for industrial purposes is expected to continue in the future, and e) the constituent standards have been exceeded for a number of constituents at the site.

A Classification Exception Area (CEA) has the effect of suspending the designated uses (potable for the Class IIA Quaternary Aquifer and Potomac Raritan Magothy Aquifer System beneath the site) and constituent standards in the indicated area for the duration of this NJPDES/DGW Permit. Upon expiration of this permit, the status of the CEA will be reevaluated. CEA One includes groundwater beneath Lots 1,2,3,4, & 5, of Block 301, Pennsville Township, Salem County and groundwater beneath Lots 1,2, &3 of Block 185 and Lot 5, Block 193 of Carneys Point Township, Salem County to a depth of about 200 feet. Table 1 of the GWR-RPCP lists the compounds for which the constituent standards are suspended for the duration of this permit. CEA Two includes groundwater beneath Lot 1 and 2 of Block 185, Carneys Point Township, Salem County to a depth of about 200 feet. Table 2 of the GWR-RPCP lists the compounds for which the constituent standards are suspended for the duration of this permit. The location of the two CEAs is shown on the following figure in this permit and on Figure 5 of the GWR-RPCP.

Appendix B of the GWR-RPCP includes the required paper hard copy and electronic submittals in accordance with N.J.A.C 7:26E-6.2(a)17 which includes:

1. Electronic Deliverables
  - a. A site base map identifying CEAs One and Two in NJDEP GIS format
  - b. Associated information files in ASCII line delimited format
  - c. Metadata files for map submission as text file
2. Hard Copy Back Up
  - a. Associated information files
  - b. A USGS Quadrangle map indicating the site location
  - c. A local road map identifying local roads around the facility
  - d. Scaled property map indicating location and aerial extent of CEAs
  - e. Metadata files for map submission

All other constituent standards apply to these areas, with the exception of those attributable to background or upgradient sources or associated with localized effects of the remedial activities. Should DuPont identify additional compounds within the classification exception areas through regular sampling, DuPont must notify the Department in writing, and the Department will add the compounds to the classification exception area.

**PART III - SPECIAL CONDITIONS FOR E.I. DUPONT CHAMBERS WORKS (Equivalent to a RCRA Closure and Post Closure Program)**

**A. Closure/ Post Closure Requirements for the RCRA "A" & "B" Basins**

1. This permit requires DuPont to continue the implementation of closure of the "A" and "B" Basins in accordance with DuPont's November 15, 1991 "A" and "B" Basin Remediation Plan, DuPont's June 1992 Design Criteria Report, DuPont's November 14, 1992 Final Design Submittal and subsequent correspondence relating to these documents. Remedial activities were conducted from August 1991 to November 1996. DuPont received a letter dated June 26, 1997 from the NJDEP and EPA conditionally approving the A and B Basin Closure Certification Report pending receipt of an acceptable DER. In addition, as documented in EPA's letter dated December 6, 2001, DuPont received a conditional No Further Action (NFA) for the A and B Basins. A summary of each major phase of closure is outlined below.

**a. Current "B" Basin Function**

The remaining 9.8 acres in the basin complex serves as a permanent water management basin for the plant. The basin is used to manage storm water and non-contact cooling water. The wastewater treatment plant effluent no longer flows to the "B" Basin. The water management basin has a subsoil base and is surrounded by earthen dikes.

**b. Dewatering and Bulking of A and B Basin Sludge and Subsoil**

DuPont placed the bulk dewatered and treated material from the A and B Basins into the A Basin Vault.

**c. In-Situ Vault**

1. DuPont constructed a vault and 100 year flood protection dike system around the vault, which contains all dewatered and bulked sludge and subsoil. The vault consists of structural fill subbase material, a system that affords protection from the constituents associated with the waste materials and a cap designed to minimize infiltration, and to reduce leaching.

2. DuPont received EPA and NJDEP approval in a letter dated June 9, 2004 to use on-site materials as part of the vault closure engineering design for the A Basin Vault Closure activities. Vault closure is anticipated in 2005.

3. In accordance with 40 CFR Part 264.115, within 60 days of completion of closure DuPont must submit to the Department certification by the owner/operator and an independent registered professional engineer that the hazardous waste management unit has been closed in accordance with the approved closure plan.

3. Within 90 days of completion of closure DuPont must submit to the Department a remedial action report which meets the requirements of N.J.A.C. 7:26E-6.6.

4. Post closure care for A and B Basin will be conducted in accordance with DuPont's August, 1995 revised Post Closure Plan and subsequent correspondence on this subject. Post closure ground water requirements are discussed in Section D below and Part II.

**B. Post Closure Requirements for the Process Water Ditch System ("A" and "C" Ditches)**

1. Post closure activities will include the maintenance of the newly installed system of pipes and swales which replace the Process Water Ditch System ("A" and "C" ditches). Additional post closure ground water activities are discussed in Section C below and Part II.

**C. Closure and Post Closure Ground Water Monitoring/Remediation Requirements for the "A", "B", and "C" Basins, the Process Water Ditch System ("A" and "C" ditches), Other RCRA Units and Miscellaneous Ground Water Corrective Action Programs**



1. Operation of the Interceptor Well System (IWS) is a requirement for post closure of the land disposal units. DuPont must pump a monthly daily average of 1.5 mgd from the B, C, and D aquifers beneath the Chambers Works portion of the facility until such time that DuPont can demonstrate that an alternate pumping rate is protective of human health and the environment. At any time DuPont may petition the Department to modify the pumping rate if DuPont can justify that the modifications are protective of human health and the environment. Approval of such a modification will not be considered a major modification of the permit.

2. DuPont will pump well J05-W01E at a sufficient rate to hydraulically contain groundwater along the southern perimeter of Chambers Works to be protective of human health and the environment. Any modifications to existing or newly proposed Corrective Action Programs will not be considered major modifications to the permit. NJDEP approval is required before any changes are implemented to an existing program or before a new program is initiated.

3.. On a semi-annual basis DuPont must determine ground water elevation measurements from a sufficient number of wells and staff gauges listed in Table 3 of the GWR-RPCP. The purpose of the water level measuring program is to demonstrate that the corrective action programs are adequately controlling the ground water in the B, C, D aquifers, and the A zone at SWMU5, beneath the site. Groundwater contour maps must be constructed for the B, C, D, and E aquifers, and the A zone at SWMU5, and submitted to the Department on a semi-annual basis as part of DuPont semiannual report. Changes to Table 3 will not be considered a major modification of the permit.

4.. The instantaneous and monthly flow rates from each recovery well must be recorded monthly and submitted to the Department on a semi-annual basis as part of the semiannual report.

5. The Class IIA criteria stipulated in the Ground Water Quality Standards (N.J.A.C. 7:9-6 et seq.) shall designate the initial ground water protection standards. Prior to turning off the recovery system, DuPont may apply for an alternate concentration limit in accordance with N.J.A.C. 7:14a-10.8(b) which if approved, would become the ground water protection standard. DuPont must petition the Department to turn off the recovery system.

6. DuPont shall sample point of compliance wells for the "A", "B", and "C" Basins shown in Figure 6 of the GWR-RPCP according to the schedule and analyte list in Table 4, Part 1 and 2 of the GWR-RPCP.

7. DuPont shall sample the perimeter wells shown in Figure 6 of the GWR-RPCP according to the schedule and analyte list in Part II of this permit.

8. Post closure monitoring shall be conducted for a period of 30 years beyond the completion of closure of the hazardous waste land disposal units. The Department reserves the right to extend the post closure period beyond 30 years if the extension is necessary to protect human health and the environment.

9. DuPont shall sample four point of compliance wells as part of the RCRA SWMU post closure plan for SWMUs 21, 25, 26, and 28 according to the schedule and analyte list in Part II of this permit for the following RCRA units:

Thermal Decontamination Furnace FR-65 (SWMU 21)  
Lead Flue Dust Storage Area and Lead Furnace Slag (SWMU 25)  
Freon Spent Catalyst Storage Area (SWMU 26)  
Telomer "A" Waste Container Storage Area (SWMU 28)

10. DuPont shall sample the monitoring wells shown in Figure 6 of the GWR-RPCP as part of the PFOA Monitoring Program according to the schedule and analyte list in Table 5 of the GWR-RPCP.

#### **D. Corrective Action Requirements for the Secure "C" Landfill**

1. DuPont shall pump wells Q20-M02B and R20-M02B at a rate of approximately 6 gpm and 7 gpm respectively. If DuPont determines or is notified by the Department that these well locations and/or pumping rates are not



sufficient to control the plume then DuPont must submit a report to the Department which proposes a revised corrective action program. At any time DuPont may petition the Department to reduce the pumping rate if DuPont can justify that the reduced rates are protective of human health and the environment. Approval of such a program will not be considered a major modification of the permit.

2. The background wells for the "C" Landfill are wells S24-M01B and T22-M01B. The ground water protection standard for secure "C" landfill shall be the less stringent of the ground water quality of the background wells or the Class IIA criteria stipulated in the Ground Water Quality Standards (N.J.A.C. 7:96 et seq.). DuPont may apply for an alternate concentration limit in accordance with N.J.A.C. 7:14A-10.8(b), which, if approved, would become the ground water protection standard. DuPont must petition the Department to turn-off the recovery system. .

3. The point of compliance wells for corrective action at Cell one (1) are P20-M01B, P21-M01B, P21-M03B, Q20-M02B, Q20-M03B, Q21-M01B and R20-M02B. Well locations are shown in Figure 6 of the GWR-RPCP. Sampling for these wells is discussed in Part II of this permit. However, sampling for P20-M01B and Q20-M03B is not required while the C Landfill Corrective Action Program is active.

#### **E. General Conditions (Semi-Annual Reports)**

1. On a semi-annual basis (by October 31, and April 30 of each year) DuPont will submit to the Department a summary report which includes the following:
  - a. A discussion of the status of the corrective action programs at the facility.
  - b. Recommendations as to needed changes in the recovery program and monitoring programs.
  - c. Semi-Annual ground water contour maps for the B, C, D, and E aquifers, and the A zone at SWMU5.
  - d. Summaries of all analytical data collected in that six-month period including field and trip blanks. Electronic data submissions applications (EDSA) in accordance N.J.A.C. 7.26E-3.13(c)3.v.
  - e. Instantaneous and monthly flow rates for each recovery well.
  - f. Summaries of the results of the statistical analyses on all ground water analytical data using the Shewart-Cusum control charts. Other statistical methods may be evaluated but DuPont will receive NJDEP approval before making any changes to the current statistical method.
  - g. Trend charts of the TOC plus TOX concentrations and total organic compound concentration versus time for each well as appropriate.
  - h. Bubble maps for the B, C and D aquifers for Total Organic Compounds (measured and/or predicted).
  - i. Updated geologic cross sections if significant new geologic data is obtained, unless the cross sections are provided under other projects
  - j. Quality Assurance reporting issues as outlined in Section 5.0 of the DuPont Chambers Works Works *Environmental Data Quality Assurance and Quality Control Program* dated August 4, 2000. Within 6 months of the effective date of this permit, DuPont must submit an updated Quality Assurance/Quality Control Program for NJDEP approval.
2. Three (3) copies of all submittals required under this permit should be submitted to the following address:  
Frank Faranca  
Bureau of Case Management  
Remedial Response Element  
NJDEP

E.I. Dupont de Nemours & Co. Inc.

NJPDES-DGW Permit No. NJ0083429 (Renewal Application)

Page 8 of 8

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3. The Department must be notified at least two weeks prior to the initiation of any new remedial activities and well installations.
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**Table 5**  
**Chambers Works PFOA Monitoring Program**  
**NJPDES-DGW Permit NJ0083429**

Sampling parameters:	Well ID	Area Section	Aquifer	Frequency	Analytical	Rationale for Sampling
<b>PFOA Monitoring Program (33 wells)</b>	AA22-M01B	CPE	B	SA	PFOA	Eastern perimeter well
	C08-M01B	CWW	B	SA	PFOA	Jackson Labs area
	C11-M03B	CWW	B	SA	PFOA	Former Antiknocks area
	D06-M01B	CWW	B	SA	PFOA	Jackson Labs area
	D15-M01B	CWW	B	SA	PFOA	Fluoroproducts area
	F07-M01B	Interior	B	SA	PFOA	Spatial distribution
	F08-M01B	Interior	B	SA	PFOA	South of Zonyl Intermediates
	G05-M02B	CWS	B	SA	PFOA	Salem Canal Seep area
	J10-M01B	Interior	B	SA	PFOA	Spatial distribution
	K13-M02B	Interior	B	SA	PFOA	South of A, B, and C Basins
	L09-M01B	Interior	B	SA	PFOA	Western edge of SWMU 8
	N08-M01B	Interior	B	SA	PFOA	South of SWMU 8
	P06-M01B	CWE	B	SA	PFOA	Eastern perimeter well
	P21-M01B	Interior	B	SA	PFOA	Area 1 of C-Landfill
	R09-M02B	Interior	B	SA	PFOA	Eastern edge of SWMU 8
	AA25-M01B(C)	CPE	C	SA	PFOA	Eastern perimeter well
	C11-M01C	CWW	C	SA	PFOA	Former Antiknocks area
	G04-M01B(C)	CWS	C	SA	PFOA	Southern perimeter well
	L09-M01C	Interior	C	SA	PFOA	Western edge of SWMU 8
	N08-M01C	Interior	C	SA	PFOA	South of SWMU 8
	P06-M02C	CWE	C	SA	PFOA	Eastern perimeter well
	R10-M01C	Interior	C	SA	PFOA	Eastern edge of SWMU 8
	Z28-M01B(C)	CPE	C	SA	PFOA	Eastern perimeter well
	AA25-M01C(D)	CPE	D	SA	PFOA	Eastern perimeter well
	C11-M02D	CWW	D	SA	PFOA	Former Antiknocks area
	J05-M01C(D)	CWS	D	SA	PFOA	White Products area
	L09-M01D	Interior	D	SA	PFOA	Western edge of SWMU 8
	N08-M01D	Interior	D	SA	PFOA	South of SWMU 8
	P06-M01D	CWE	D	SA	PFOA	Eastern perimeter well
	C11-M01E	CWW	E	SA	PFOA	Former Antiknocks area
	G04-M01E	CWS	E	SA	PFOA	Southern perimeter well
	P06-M01E	CWE	E	SA	PFOA	Eastern perimeter well
	R10-M01E	Interior	E	SA	PFOA	Eastern edge of SWMU 8

**FREQUENCY**

SA = Semi-Annually (two times per year)

**AREA SECTIONS**

CWW = Chambers Works Western Perimeter along Delaware River

CWS = Chambers Works Southern Perimeter along Salem Canal

CWE = Chambers Works Eastern Perimeter along Route 130

CPW = Carneys Point Western Perimeter along Delaware River

CPE = Carneys Point Eastern Perimeter along Route 130

Interior = Interior of complex

